Soumik Bhattacharyya

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Aspiring researcher with a Master's in Physics and expertise in Astrophysics through a research-focused dissertation.

Education

2018 – 2023 **Five Year Integrated M.Sc.** (Physical Science)
National Institute of Science Education and Research (NISER), HBNI, Bhubaneswar, India
CGPA: 7.84

2018 **Intermediate/ Higher Secondary**
Burdwan Municipal High School, West Bengal Council for H.S. Education
Percentage: 92.40%

2016 **Matriculation/ Secondary**
Burdwan Municipal High School, West Bengal Board of Secondary Education
Percentage: 94.57%

Research Experience

2022 – 2024 **Common Envelope Evolution on the Asymptotic Giant Branch of Binary Star Evolution: Towards Building a Simple Model** (Dissertation)
MSc dissertation project with *Dr. Luke Chamandy*, SPS, NISER
Preparing manuscript

2023 **Venus VIRTIS Data Pipeline for Surface Compositional Analysis**
Research Assistant, with *Dr. Guneshwar Thangjam*, SEPS, NISER

2023 **Retrieving Pressure-Temperature and Water Vapour Profiles in Earth's Atmosphere from INSAT 3DR Data** (Semester Report)
Machine Learning Project with *Dr. Jayesh M. Goyal*, SEPS, NISER and *Dr. Subhankar Mishra*, SCS, NISER
Preparing manuscript

2022 **Surface Properties of Maxwell Montes region of Venus using Arecibo Dual-Polarization Radar Data**, (Internship Report)
Summer Internship with *Dr. Sriram Saran Bhiravarasu*, SAC, ISRO

2021 – 2022 **Pre-processing and Analysis of hyper-spectral images of Asteroid Ceres acquired by the VIR Spectrometer on-board NASA's Dawn Mission (Semester Report)**
Continued Semester Project with *Dr. Guneshwar Thangjam*, SEPS, NISER

2019 **Study of gravity bound 3-body system using orbital dynamics and intensity interferometry**

Summer Internship with *Dr. Subrata Sarangi*, CUTM, Jatni

Conference Presentations

VEXAG **Surface Properties of Maxwell Montes Using New Arecibo Dual-polarization Radar Data** (Online) (NASA/ADS Link)

Venus Exploration Analysis Group, November 2022

Albuquerque, New Mexico, USA

Venus-SC 2022 **Radar scattering properties of Maxwell Montes region using ground-based radar data** (Online) (Volume of Abstracts)

Award Best Paper Presentations among the Young Researchers

Venus Science Conference, September 2022

Physical Research Laboratory (PRL), Ahmedabad

IPSC 2022 **Thermal and Photometric Analysis of Asteroid Ceres from VIR spectrometer onboard NASA Dawn** (Online) (Abstract)

Indian Planetary Science Conference, March 2022

Physical Research Laboratory (PRL), Ahmedabad

Ceres 2021 **Thermal Correction of Dawn/VIR data using Clark's Approach and Hapke Model of Photometry** (Online)

Ceres Workshop, October 2021

Max Planck Institute for Solar System Research, Göttingen, Germany

Physics 2019 **Study of gravity bound 3-body system using orbital dynamics and intensity interferometry** (Poster)

International Conference on Fundamental Physics, September 2019

BM Birla Science Centre, Hyderabad, India

Other Conferences and Workshops

Sep 2020 *Advances in High Energy Physics (AHEP)*

Dr. B. R. Ambedkar National Institute of Technology, Jalandhar (Online)

Oct 2018 *Regional Workshop on Research and Opportunities, Indian Women and Mathematics*

NISER Bhubaneswar

Oct 2018 *One Day RAD@home Astronomy Workshop* by Dr. Ananda Hota, CEBS

NISER Bhubaneswar

Fellowship

INSPIRE Recipient of INSPIRE Scholarship and Contingency Grant (Summer Internship) by Department of Science and Technology (DST), Govt. of India

Relevant Courses

Classical Mechanics- I & II, Mathematical Methods- I & II, Electronics, Electromagnetism- I & II, Quantum Mechanics- I & II, Statistical Mechanics, Special Theory of Relativity, Nuclei and Particles, Atoms Molecules and Radiation, Introduction to Condensed Matter Physics, Quantum Field Theory- I, Experimental Techniques, Nonlinear Optics and Lasers, Introduction to Cosmology, Astronomy and Astrophysics, General Theory of Relativity, Quantum Chemistry- I, Theory of Computation, Machine Learning, Probability Theory, Programming for Everybody (Getting Started with Python) and Python Data Structures (Dr. Charles Severance, University of Michigan and Coursera), Astronomy: Exploring Time and Space (Dr. Chris Impey, The University of Arizona and Coursera)

Technical Skills

Programming Languages	Python (proficient), C++, IDL, Scilab, MATLAB
Relevant Softwares	VisIt, ISIS, ArcGIS, ENVI, SAO-DS9
Languages	English (fluent), Bengali (native) and Hindi

Others

Administrative	Outreach Head of Zaariya, the social service club of NISER, 2019-2022 Member and Event Coordinator of NISER astronomy club, 2018-2020
Sports	Member of NISER football team
Cultural	Actor, director and writer at Drama group, Drama and Music Club of NISER Actor, director at NISER Film Club and independent movies